

REMARKS

Claims 1-3 and 6-11 have been rejected by the Examiner under 35 USC 103(a) as being unpatentable over U.S. Patent 6,617,409 to Yukawa et al. in view of U.S. Patent 6,177,196B1 to Brothers et al. Claim 4 has been rejected by the Examiner under 35 USC 103(a) as being unpatentable over the combined teaching of Yukawa '409 and Brothers '196 and further in view of U.S. Patent 6,489,396B2 to Nakamura et al. Also, claims 5 and 9-10 have been rejected by the Examiner under 35 USC 103(a) as being unpatentable over Yukawa '409 and Brothers '196 and further in view of U.S. Patent 5,216,081 to Mohri et al. These rejections are respectfully traversed.

The present invention is directed to a flake pigment provided with a coating made of a resin composition containing a copolymer comprising a bond unit from a fluoric polymerizable monomer having alkyl fluoride groups and a bond unit arising from a polymerizable monomer having phosphate groups. The flake pigment is used in paint and a powder paint for providing the paint with high brightness. Thus, the flake pigment of the present invention is useable in a powder paint for supplying a film with excellent metallicity and high brightness and further providing excellent secondary adhesiveness.

Yukawa '409 is relied upon by the Examiner to show a phosphate-group containing resin which is a copolymer of two kinds of specific phosphate-group containing polymerizable monomers which is excellent in its absorptive property to the surface of a metallic pigment and effective in inhibiting a reaction of water with a metallic pigment over a long period of time. The coating is also advantageous in its adhesive property, water resistance property, chipping resistance and metallic finish feeling (please see Col. 1, lines 53-64 of Yukawa '409. However, as noted by the Examiner, Yukawa '409 is silent with respect to the use of alkyl fluoride groups in the patentees' copolymer which is a requirement established by the claims of the present application.

Recognizing the deficiencies of Yukawa '409, the Examiner has further relied upon Brothers '196 in an attempt to render obvious the Applicants' inventive contribution. However, while Brothers '196 shows the use of fluoromonomers and polymers thereof and various types of coating compositions, the closest Brothers '196 comes to the present invention is the use of phosphorus-containing compounds together with the alkyl fluoride units as distinguished from the use of polymerizable monomers having "phosphate" groups as defined by the claims of the present application. Thus, Col. 2, line 5 of Brothers '196 refers to the use of phosphorus-containing compounds and Col. 3, lines 7 and 37 refers to the use of phosphorus-containing fluoropolymers as distinguished from the copolymers containing the "phosphate" units of the present invention. Thus, in the present invention, the copolymer is typically soluble in a solvent due to the molecular structure wherein alkyl fluoride groups and "phosphate groups" are present in separate side chains of the copolymer. The compound (I) disclosed in Brothers '196 would be expected to lack solubility to a solvent to enable sufficient coating onto the surface of the flaked particles since the polymer derived from compound (I) contains phosphorus units and alkyl fluoride units in the same side chain.

The flaked pigment of the present invention provides a film with excellent metallicity and high brightness and further provides excellent secondary adhesiveness (please see page 7, lines 21-24 of the present application). The effects of the present invention are achieved by covering the surface of flake pigment comprising base particles with a resin composition containing a copolymer comprising both a bond unit arising from a fluorine polymerizable monomer having alkyl fluoride groups and a bond unit arising from a polymerizable monomer having phosphate groups. The alkyl fluoride groups in the comonomer molecular structure affects the floating of the flake pigment wherein the comonomer is absorbed on the surface of the film through the inferior affinity of the alkyl fluoride group with respect to other substances. According to this effect, the flake pigment can be arranged in parallel with the substrate for attaining excellent metallicity (see page 12, lines 2-6 of the present application). The phosphate group in the copolymer molecular structure affects the absorbing of the copolymer to the flake particles through excellent absorbability of the phosphate group. The phosphate group can improve

secondary adhesiveness at the same time. Thus, the phosphate group exhibits excellent absorbability with respect to the flake particles and can coat the flake particles with the copolymer through absorption (please see page 13, lines 1-6 of the present application).

Yukawa '409 discloses a phosphate group containing resin which is very useful as a passivator for the metallic pigment (please see Col. 4, lines 29-31). However, Yukawa '409 fails to teach or suggest the concept of loading the flake pigment on the surface of the film substances. Furthermore, Brothers '196, Nakamura '396, and Mohri '081 also fail to teach or suggest the technical concept of the present invention since the technical fields of all of these references are substantially different from that associated with flake pigment and accordingly the references can only be combined to reject the claims of the present application when viewed in the light of the Applicants' own disclosure.

Accordingly, in view of the above remarks, reconsideration of the rejections and allowance of all of the claims of the present application are respectfully requested.

Application No. 10/540,004
Response dated April 16, 2007
In response to Office Action dated January 22, 2007

Docket No.: 0033-1008PUS1

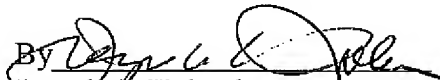
CONCLUSION

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Joseph A. Kolasch Reg. No. 22,463 at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37.C.F.R. §§1.16 or 1.14; particularly, extension of time fees.

Dated: April 16, 2007

Respectfully submitted,

By 
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